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Changes in school alienation profiles among secondary school students and the role of teaching style: Results from a longitudinal study in Luxembourg and Switzerland

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ABSTRACT

What students think about school has a major impact on learning and academic achievement. The multi-domain concept of school alienation distinguishes between alienation from learning, from teachers and from classmates. We aim to study a) alienation patterns among secondary school students, b) how school alienation profiles change from year 7 to year 9 and how secondary school students transition between profiles, and c) the role of teaching style for transitions between school alienation profiles. We draw on panel data of secondary school students from Luxembourg and Switzerland. Results of latent profile/latent transition analyses reveal distinct school alienation profiles, country differences and support for the idea that student-oriented, supportive teaching styles might prevent students from transitioning towards more-highly alienated profiles.

1. Introduction

Students' attitudes toward learning and school and their experiences at school are important determinants not only of their educational success, but also of the functioning of the entire school environment. Students' attitudes shape their social and learning behaviour. In this regard, alienation from school – defined in terms of negative attitudes towards different aspects of schooling (Hascher & Hadjar, 2018) – is consistent with more deviant behaviour and less participation in the classroom, affecting students, teachers and the school environment (Morinaj, Hadjar, & Hascher, 2019; Morinaj, Marcin, & Hascher, 2019; Demanet & Van Houtte, 2011, 2012).

School alienation has been conceptualised and shown to inhabit a multi-domain structure (Hascher & Hadjar, 2018; Morinaj et al., 2017). As alienation levels may vary across different domains – such as learning, teachers and classmates – there is added value in applying a person-oriented approach (Bergman & Magnusson, 1997) to analyse alienation profiles and the degree to which they change. The identification of student groups characterised by specific levels of alienation from learning, teachers and classmates, and

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transitions from such alienation profiles during secondary education, could help to better understand the development of school alienation. Additionally, we consider the importance of the school context for school alienation and the particular importance of teachers for transitions between school alienation profiles. Although classmates (and peers in general) gain importance during secondary schooling – something that is also driven by adolescence (De Valle, Bravo, & López, 2010) – teachers remain central agents in school. In managing the classroom and supporting students' bonding to school, teachers thus determine school conditions, social relationships, individual learning resources and well-being in school, and they can even shape peer-relationships in school (Hattie, 2009; Hendrickx, Mainhard, Boor-Klip, & Brekelmans, 2017; Konu & Rimpelä, 2002). How students experience teaching styles in the classroom can affect their attitudes towards school, and thus, their alienation regarding different domains. We consider these aspects in two ways. First, we identify alienation profiles and compare the changes in alienation profiles in two countries. Second, we analyse the role of teaching styles, which in turn reflects the school context in terms of the classroom interactions between teachers and students, as moderators of the change in school alienation.

The objective of the present paper is to gain insight into the multi-domain structure of school alienation, to understand students' transitions between school alienation profiles from year 7 to year 9, and how these changes are influenced by teaching style in two different educational settings. Our analyses focus on the externally differentiated secondary education systems of Luxembourg and the Swiss Canton of Bern. While the first unit of comparison is a country (Luxembourg) and the latter a region (Swiss Canton of Bern), both entities are comparable in size and in their structure of governance. In Luxembourg, the secondary education system is administered at the country level and in Switzerland at the canton level.

2. The school alienation concept

In countries across the world, secondary school students are regarded as a particularly vulnerable group for being at odds with school, which can lead to academic failure and school dropout (Eccles et al., 1993). Especially during adolescence, students' positive attitudes and motivation towards school and learning decrease and they face motivational conflicts between leisure activities and school tasks (Hascher & Hagenauer, 2010; Hofer, 2004). Accordingly, adolescents are at risk of developing or aggravating school alienation (Calabrese, 1987). In a pronounced way, alienated students are emotionally distracted from academic goals and values and their affinity for school is weak (Finn, 1989). It follows that school alienation can be considered as being the opposite of positively regarded concepts relating to students' attitudes and behaviour in school such as bonding, commitment, or motivation, although there is no consensus on this (Hascher & Hagenauer, 2010).

While alienation in educational contexts has been a research issue for almost 40 years (Calabrese & Seldin, 1986), a comprehensive framework of school alienation has been notably absent from this conversation for some time. According to Hascher and Hadjar (2018), school alienation is defined as a set of negative attitudes towards social and academic aspects of schooling. The concept comprises three domains with regard to which alienation may occur in the school context: learning, teachers, and classmates. To speak of school-alienated students, they need to be alienated in at least one of those domains. The aforementioned multi-domain structure was analysed by Morinaj et al. (2017) who showed that the three alienation domains are located on the same level, providing support for the first-order three-factor structure. The three domain-related alienation dimensions cannot be conceptualised as (first-order) sub-dimensions of a school alienation (second-order) factor, but seem to be rather weakly linked to each other having differential associations with certain correlates. Thus, to investigate whether the three dimensions of school alienation are better understood in a typological approach by exploring latent alienation profiles appears to be particularly promising, and may reveal how alienation domains are interlinked.

School alienation is conceptualised as a process of de-bonding and becoming increasingly distant in relation to school (Hascher & Hadjar, 2018), which makes it particularly useful to detect changes in students' school alienation attitudes over time. Therefore, school alienation constitutes a long process of disengagement from school for social or academic reasons (Rumberger, 1987) in conjunction with increasing levels of demotivation and isolation (Brown, Higgins, & Paulsen, 2003; Calabrese, 1987; Finn, 1989; Hendrix, Sederberg, & Miller, 1990; Legault, Pelletier, & Green-Demers, 2006; Murdock, 1999). The increasing passivity and weakening bonds with school can finally culminate in school dropout, which is the last stage of the alienation process (Murdock, 1999; Trusty & Dooley-Dickey, 1993). Students' risk of developing school alienation is determined by their gender, socio-economic background and educational values and aspirations (Hendrix et al., 1990). For example, boys show higher alienation scores than girls (Hadjar, Backes, & Gysin, 2015; Hascher & Hagenauer, 2010).

School alienation can be differentiated from other concepts such as disengagement (Eccles & Wang, 2013; Finn & Zimmer, 2013; Fredricks, Blumenfeld, & Paris, 2004), as such concepts usually include behavioural aspects like lack of active participation in class and school activities (Finn & Zimmer, 2013). School alienation, however, is situated at the attitudinal level while behaviour is conceptualised as an outcome (Hascher & Hadjar, 2018). Thus, comparing school alienation and various definitions of disengagement, alienation is similar to emotional disengagement (Fredricks, Blumenfeld, & Paris 2004). At the behavioural level, disengagement can be interpreted as a consequence of alienation (Hascher & Hadjar, 2018).

3. Teaching styles and school alienation

School alienation develops over time with generally higher alienation levels in secondary school. While individual characteristics are determinants of attitudes towards school and learning such as school alienation, these attitudinal patterns are also driven by everyday experiences in the educational institutions that relate to requirements of the learning environment and social relationships (Rovai & Wighting, 2005). Therefore, negative experiences in school may facilitate school alienation, for example when students face

disrespectful treatment by a teacher. There is a consensus in educational research that teachers fulfil an important role in the school environment as they function as a crucial social resource or social capital determining students' well-being (Coleman, 1988; Gambone, Connell, Klem, Sipe, & Bridges, 2002; Pianta, Hamre, & Stuhlman, 2003) as well as their academic, social and emotional development (Hamre & Pianta, 2007; Rutter & Maughan, 2002; Wang & Fredericks, 2014).

As important socialisation agents in the classroom, teachers provide emotional and instructional support as well as classroom organisation that impacts the student-teacher interaction and the interactions among students, that are in turn crucial factors of learning (Hallinan, 2008; Hendrickx et al., 2017; Konu & Rimpelä, 2002; Luckner & Pianta, 2011). One of the main mechanisms behind teachers' impact on students is the variety of teaching styles, such as authoritarian, authoritative and permissive styles (Dever & Karabenick, 2011). These teaching styles represent different patterns of teachers' thinking and interactions and affect students' attitudes differently. Whereas an authoritarian teaching style is characterised by high academic pressure and low solicitude, a permissive teaching style typically entails high solicitude but low academic pressure and support (Dever & Karabenick, 2011). The authoritative teaching style balances solicitude and pressure by exhibiting the highest level of direct academic support. Thus, this affirming teaching style is assumed to be the most beneficial for students as it supports well-being (in the absence of authoritarian elements that harm students) and the facilitation of learning processes. The positive impact of an authoritative teaching style on students has been identified by several empirical studies and it has been shown that an authoritative teaching style increases students' performance and integration into the school environment (Baker, Clark, Crowl, & Carlson, 2009; Birch & Ladd, 1998). These studies also showed that it reduces the risk of school failure and thus, is beneficial for students' educational performance and development. The more students think positively about school, the more the likelihood of deviant behaviour and alienation from school declines while the prospect of higher educational success increases (Hadjar et al., 2015). Authoritative teaching fosters positive teacher-student relationships for several reasons. For one, it has a positive impact on the integration into the learning environment – as outlined by Baker et al. (2009). Moreover, its key features include caring about social relationships, a high level of support, a demonstrated interest in students, an emotional component and providing students with the reasons behind decisions. As the authoritative teaching style involves student guidance and a moderate degree of control (e.g. with regard to deviant behaviours), it also reduces the prevalence of bullying (Allen, 2010) and supports positive relationships among students in the classroom.

Given the high relevance of supportive teaching styles for students' development and attitudes towards school and the particular role of support (Legault et al., 2006), this study focuses on a student-oriented and supportive teaching style. As outlined above, teacher support facilitates learning and fosters positive teacher-student-relations as well as positive relations among students. Accordingly, we hypothesise that teacher support reduces school alienation in all three domains: learning, teachers and classmates.

4. Contextualisation: the education systems of Luxembourg and Switzerland (Canton of Bern)

In general, how individuals evaluate objects and other people in their lives – e.g. classmates, teachers, and learning in school – depends on context (Ajzen, 2001). Considering education, context matters for educational processes (Becker & Schulze, 2013; Thrupp & Lupton, 2006). Therefore, a key assumption of the present study is that the emergence of school alienation is context-specific. It follows that the individual level of school alienation, the students' perception of teaching styles and the expected links between teaching style and students' attitude developments are embedded in educational contexts. Characteristics of distinct school contexts that are important for both learning outcomes and attitudes towards learning include the differentiation into school tracks and specific classroom compositions (Baumert, Stanat, & Watermann, 2006). This feature of education systems is better known as *external segregation* (Van de Werfhorst & Mijs, 2010) or *stratification* (e.g. Allmendinger, 1989; Hadjar & Gross, 2016). Distinct school tracks constitute distinct learning and developmental environments (Baumert et al., 2006; Grecu, Hascher, & Hadjar, 2019). The stratification level of an education system also has an impact on teaching, as Dreeben and Barr (1988) show, teachers adapt their design of instruction particularly to the curricula and achievement levels of the student body. This applies to both the school and the classroom level depending on the tracked school system and is thus reflected in specific compositions of the student body (Dreeben & Barr, 1988; Thrupp, Lauder, & Robinson, 2002).

With respect to the education systems of Luxembourg and of the Canton of Bern – the latter being one specific system within the variety of canton-specific education systems in Switzerland – both institutional settings can be characterised as stratified, as students are assigned to secondary school tracks after primary education based on teachers' recommendations and parental choices. Secondary education in Luxembourg is highly stratified with at least three general secondary school tracks – an academic track, vocational tracks and a low-aspiration level school track (Backes & Hadjar, 2017). Students are assigned to these distinct secondary school tracks after two years of compulsory pre-schooling and six years of primary schooling at the age of 12. Further selection processes follow within the vocational tracks in years 8 and 9. Hence, Luxembourgish classrooms are homogeneously composed in terms of the social origin and performance levels of students. Swiss students are also assigned to different tracks depending on their levels of instruction. In the Swiss Canton of Bern, decisions about attending upper secondary academic or vocational education are not taken before year 8 at the age of 14, although students are assigned to different levels before reaching that age. However, these levels do not mean that students necessarily learn in different environments, as there is a heterogeneity of schools including comprehensive schools (students of different levels learning in the same classroom) and more stratified schools (level-specific classrooms or even level-specific schools). Thus, compared to Luxembourg, the school setting in the Canton of Bern is more heterogeneous and less stratified. Permeability between the different parallel secondary school tracks and levels is low for Luxembourg (Backes & Hadjar, 2017) as well as Switzerland (Buchmann, Kriesi, Koomen, Imdorf, & Basler, 2016), although given the described features above, transitions between different parallel school levels in Switzerland are more likely. As the level of stratification of an education system is linked to educational inequalities in achievement differences and educational trajectories (Hadjar & Gross, 2016; Van de Werfhorst & Mijs, 2010), there is

empirical evidence to suggest educational inequalities coalesce around ascriptive individual characteristics. Working class students, male students and certain vulnerable immigrant backgrounds, in particular students of Portuguese origin (Backes & Hadjar, 2017), suffer remarkable disadvantages in both educational settings – see for example national educational reports for Luxembourg (Ministère de l'Éducation nationale, de l'Enfance et de la Jeunesse & Université du Luxembourg, 2018) and for Switzerland (Swiss Coordination Centre for Research in Education (SCCRE), 2018). In Luxembourg, certain pressures to achieve in particular seems to play a role in the genesis of alienation, particularly pressures to perform well in a high-aspiration school track, to transit late to a high-aspiration school track, or to avoid down-grading (Grecu et al., 2019).

Table 1
Operationalisations.

Scale/Item, origin	Construction, Sample items	Internal consistency (Cronbach's Alpha)	Example items	Distribution Luxembourg-gish sample	Distribution Swiss sample
Profile variables					
School alienation from learning, wave 1 and 3 (self-construction, Morinaj et al., 2017)	8 items, students' indication: (1 – disagree, 4 – agree), mean index, Min: 1, Max: 4	Year 7/wave 1 LU : $\alpha = .85$, CH : $\alpha = .88$; Year 9/wave 3 LU : $\alpha = .88$, CH : $\alpha = .87$	"The things we learn in school are boring." "I don't find pleasure in learning at school."	Year 7/wave 1 Mean = 1.85, SD = .59 Year 9/wave 3 Mean = 2.22, SD = .63	Year 7/wave 1 Mean = 1.84, SD = .56 Year 9/wave 3 Mean = 1.99, SD = .59
School alienation from teachers, wave 1 and 3 (self-construction, Morinaj et al., 2017)	8 items, students' indication: (1 – disagree, 4 – agree), mean index, Min: 1, Max: 4	Year 7/wave 1 LU : $\alpha = .80$, CH : $\alpha = .76$; Year 9/wave 3 LU : $\alpha = .85$, CH : $\alpha = .88$	"I don't feel comfortable when the teachers are near me." "The teachers get on my nerves."	Year 7/wave 1 Mean = 1.68, SD = .51 Year 9/wave 3 Mean = 1.99, SD = .62	Year 7/wave 1 Mean = 1.55, SD = .45 Year 9/wave 3 Mean = 1.75, SD = .57
School alienation from classmates, wave 1 and 3 (self-construction, Morinaj et al., 2017)	7 items, students' indication: (1 – disagree, 4 – agree), mean index, Min: 1, Max: 4	Year 7/wave 1 LU : $\alpha = .81$, CH : $\alpha = .78$; Year 9/wave 3 LU : $\alpha = .77$, CH : $\alpha = .83$	"In my class, I feel like someone who doesn't fit in." "My classmates get on my nerves."	Year 7/wave 1 Mean = 1.54, SD = .48 Year 9/wave 3 Mean = 1.70, SD = .46	Year 7/wave 1 Mean = 1.49, SD = .42 Year 9/wave 3 Mean = 1.79, SD = .39
Moderator variable					
Student-oriented competence supporting teaching style, waves 1 and 2 (Maag Merki et al., 2014)	5 items, students' answers: 1 – disagree, 4 – agree, mean index, Min: 1, Max: 4 Transferred into mean score based on Wave 1 mean score and Wave 2 mean score Transferred into a binary variable via median split (Median LU = 3.2; Median CH = 3.2): Group 1: low student-oriented teaching style Group 2: high student-oriented teaching style	Year 7/wave 1: LU : $\alpha = .87$, CH : $\alpha = .79$ Year 8/wave 2: LU : $\alpha = .86$, CH : $\alpha = .82$ LU : $\alpha = .65$; CH : $\alpha = .64$	"If I have a question regarding the content, I can ask my teacher." "My teachers guide me, what to improve."	Year 7/wave 1 Mean = 3.24, SD = .59 Year 8/wave 2 Mean = 3.08, SD = .60 Mean Score Waves 1 + 2 Mean = 3.16, SD = .53 Group 1: 47.3 %, Group 2: 52.7 %	Year 7/wave 1 Mean = 3.33, SD = .47 Year 8/wave 2 Mean = 3.20, SD = .49 Mean Score Waves 1 + 2 Mean = 3.26, SD = .41 Group 1: 40.3 %, Group 2: 59.7 %
Control variables					
Gender	Dichotomous variable (as after screening the classrooms, all students identified as being either 'male' or 'female')			Female: 43.2 %, Male: 56.8 %	Female: 56.7 %, Male: 43.3 %
Social origin	Coding based on student information on their mothers' and fathers' educational level (university degree/below university degree) and current or former occupations following a collapsed Erikson, Goldthorpe and Portocarero's (1979) class scheme			Working and lower middle class: 69.9 %, service class (high SES): 30.1 %	Working and lower middle class: 76.6 %, service class (high SES): 23.4 %
Immigrant background	Based on information on the students' countries of birth and their parents' "immigrant background" category: either first generation, second generation or 2.5 generation immigrants (i.e. students with one parent born abroad)			Non-immigrants: 31.1 %, immigrant background: 68.9 %	Non-immigrants: 55.9 %, immigrant background: 44.1 %

Data sources: SASAL-School Alienation in Switzerland and Luxembourg, Secondary students, panel sample, years 7–9 (waves 1–3), Luxembourg $N = 366$, Switzerland $N = 373$.

A comparison of alienation profiles and their change in both settings contributes to an understanding of the context of sensitivity on the one hand and provide some trans-contextual evidence of alienation profiles on the other hand. Given the similarities and difference between the two education systems, we expect some discrepancies with more pronounced alienation profiles from year 7 in Luxembourg due to higher stratification and segregation and the related pressures.

5. Aims of the study

The objectives of our study are fourfold:

- (1) Based on the multidimensional nature of school alienation, we aim at *identifying school alienation profiles*.
- (2) Assuming that alienation increases over the educational career with specific peaks in secondary education, we analyse *how school alienation profiles change between year 7 and year 9 and how secondary school students transition between school alienation profiles*.
- (3) As teaching style might function as a major correlate of school alienation, we investigate *how a student-oriented competence supporting teaching style impacts alienation profiles*.
- (4) With regard to country differences and the role of institutional characteristics for school alienation, we investigate the research objectives (1–3) focusing on *how alienation profiles change*. These changes are considered in the two stratified educational systems of Luxembourg and the Swiss Canton of Bern in order to derive implications that may also be useful beyond these specific settings.

6. Methods

6.1. Data set and net sample

The present study is based on a three-wave panel data set gathered during the research project SASAL – School Alienation in Switzerland and Luxembourg with a special focus on the development, causes, and consequences of school alienation. While the analysis of school alienation profiles and changes in school alienation profiles relates to year 7 (wave 1) and year 9 (wave 3), year 8 (wave 2) information is used together with wave 1 information to operationalise teaching style. The secondary school samples include data from 387 students in the Luxembourgish sample and 401 students in the Swiss sample. Regarding missing values, none of the variables of interest included in our analysis models shows more than 5 % missing values. We thus employ listwise case deletion and base our analysis on two data sets that comprise all the information needed to carry out the analysis of school alienation profiles, allowing a special focus on the moderating function of teaching style as well as the ability to control for socioeconomic variables. The final panel sample for this study includes $N = 366$ secondary school students from Luxembourg (56.8 % male; t_1 : $M_{\text{age}} = 12.7$ years [$SD = .64$]) and $N = 373$ secondary school students from the Swiss Canton of Bern (43.3 % male; t_1 : $M_{\text{age}} = 13.0$ years [$SD = .54$]) who participated in all waves of data gathering (years 7–9).

6.2. Measures

The operationalisations of the different concepts are shown in Table 1. While the three domain-specific school alienation dimensions are used to determine different attitudinal profiles towards school, the factor that is analysed with regard to how it impacts the transitions between the profiles between year 7 and year 9 in secondary school is a student-oriented competence supporting teaching style. School alienation is measured via the self-developed School Alienation Scale (SALS). The SALS is a theory-driven scale that has undergone extensive cross-sectional validation (Morinaj et al., 2017) and longitudinal validation (Morinaj, Hadjar et al., 2019; Morinaj, Marcin et al., 2019). The student-oriented and supportive teaching style is measured by five items of the perceived competence support scale (Maag Merki et al., 2014). This scale has been developed as one of the instruments to measure the learning climate (Leutwyler & Maag Merki, 2004; Prenzel, Kristen, Dengler, Ettl, & Beer, 1996) and focuses on teacher support at its core. In order to compare the different country and education system settings (in Luxembourg and Switzerland, Canton of Bern) more adequately vis-à-vis different compositions of student populations that may also impact students' alienation levels, we control for gender, social origin and immigrant backgrounds.

6.3. Analytical strategy

To identify school alienation profiles among secondary school students in Luxembourg and Switzerland, Latent Transition Analysis (LTA) was employed using Mplus 7.3 (Muthén & Muthén, 1998–2014; Muthén & Muthén, 1998–2014). As a person-centred clustering method, LTA follows two main objectives. First, LTA enables the allocation of individuals towards a previously unknown sub-population, or various alienation profiles in this context, in a probabilistic way. Second, LTA estimates transition probabilities from one pattern at a certain point in time to another pattern at a later point in time (see Vermunt & Magidson, 2002). We chose this method because of its potential to retrace changes in students' characteristics, which are affected by a complex bundle of individual and institutional factors including the time spent in school. More than this, LTA observes changes in patterns of variables. Our key pattern is school alienation having three distinct but interconnected dimensions: alienation from learning, alienation from teachers and alienation from classmates. Using LTA enables the modelling of covariates and explains changes over time between alienation

profiles (Muthén & Asparouhov, 2011; for an example: Festner, Gröschner, Goller, & Hascher, 2020).

In modelling LTA, we followed the strategy of Muthén and Asparouhov (2011), focusing on latent profile or latent transition analysis. First, to identify the adequate number of patterns, statistical parameters and strategic considerations concerning adequacy and applicability were employed. Taking into account the comparative nature, we followed a case-sensitive approach choosing the best-fitted solution or model for each country. Separate Latent Profile Analysis (LPA) with 2, 3, 4 and 5 patterns were computed for each country for two time points of inquiry (year 7 and 9). We followed Collins and Lanza (2010) and Geiser (2013) in interpreting several indices to identify an optimal profile solution. In Tables 1 and 2, we list Akaike's Information Criterion (AIC), a Bayesian Information Criterion (BIC), a Sample-Size Adjusted BIC (aBIC), Entropy, a Lo-Mendell-Rubin Likelihood Ratio Test for N-1 (H0) versus N Profiles (LM LRT), a Lo-Mendell-Rubin Adjusted LRT Test (ALM LRT) and a Parametric Bootstrapped Likelihood Ratio Test for N-1 (H0) versus N Profiles (BLRT). While for the first three indices (AIC, BIC and aBIC) a lower value implies a better model fit, a higher entropy score indicates that the cases (participants) are classified well into the different categories with values above .80 suggesting a very good classification fit. The LM LRT, ALM LRT and BLRT significance tests reveal whether the fit of the profile solution (N profiles) significantly differs from the previous profile solution (N-1). Significance scores above the convention of $p > .05$ show that the N profile solution does not show a significantly different fit in comparison to the previous solution (N-1). If the N-1 fit is better, the N-1 profile solution is preferable to the N profile solution.

In addition to statistical considerations, we ensured interpretability by taking into account the initial situation, expectations concerning the number of alienation profiles and the cell distribution.

We then estimated an LTA with student-oriented competence supporting teaching style as moderator. Students of each country or case were divided into two groups by median split – one student group that experienced a student-oriented teaching style (LU: $N = 190$; CH: $N = 222$) and another student group that was taught in a less student-oriented teaching style (LU: $N = 173$, CH: $N = 150$). Depending on these teaching styles, moderator analysis reveals transition probabilities regarding transitions between school alienation profiles.

7. Results

The first step of our analysis uses LPA to identify the number of school alienation profiles. In a second step, based on a LTA, we present distinct school alienation profiles, transition probabilities with regard to how students change between profiles, and how teaching style moderates transitions between school alienation profiles.

7.1. The number of school alienation profiles

School alienation patterns in year 7 and year 9 have been identified in Luxembourg and Switzerland employing the LPA in Mplus 7.3 (Muthén & Muthén, 1998-2014; Muthén & Muthén, 1998-2014). We followed Geiser (2013) and Collins and Lanza (2010) in interpreting several indices to identify an optimal profile solution. In the Tables 2 and 3 we list the fit statistics described above to evaluate the optimal number of profiles for our analysis.

The fit statistics for the Luxembourgish sample indicate that a four-profile solution fits the data better than the other solutions for both year 7 and year 9 with the lowest BIC score and an entropy around .80. According to the significance tests, the four-profile solution is to be preferred in year 7. For year 9, the fit of the three-profile solution also does not significantly differ from the two-profile solution. However, entropy does only reach a reasonable score with the four-profile solution, which is preferred over the solution with five profiles due to its parsimony and because it has the lowest BIC.

The fit statistics for the Swiss sample indicate that a two-profile solution fits the data better than the other solutions for both year 7 and year 9 with an entropy getting close to .80 and a BIC score having profoundly dropped in comparison to the one-profile solution.

Table 2

Information criteria and entropies for LPA models with different numbers of profiles (Luxembourgish sample).

Year 7 (wave 1), Luxembourgish sample							
	AIC	BIC	aBIC	Entropy	LM LRT	ALM LRT	BLRT
1 profile	1823.313	1847.064	1828.026	–	–	–	–
2 profiles	1671.489	1711.073	1679.344	0.888	0.0003	0.0004	0.0000
3 profiles	1574.647	1630.065	1585.645	0.772	0.0002	0.0003	0.000
4 profiles	1534.886	1606.138	1549.026	0.826	0.0150	0.0175	0.0000
5 profiles	1521.289	1608.374	1538.570	0.796	0.4283	0.4467	0.0000
Year 9 (wave 3), Luxembourgish sample							
	AIC	BIC	aBIC	Entropy	LM LRT	ALM LRT	BLRT
1 profile	1970.415	1994.166	1975.129	–	–	–	–
2 profiles	1831.846	1871.430	1839.701	0.682	0.0004	0.0006	0.0000
3 profiles	1801.585	1857.003	1812.583	0.644	0.1373	0.1464	0.0000
4 profiles	1771.070	1842.322	1785.210	0.785	0.0808	0.0864	0.0000
5 profiles	1762.459	1849.544	1779.740	0.823	0.1477	0.1569	0.0300

Data source: SASAL-School Alienation in Switzerland and Luxembourg, Secondary students, Luxembourg, panel sample, year 7 (wave 1) and Year 9 (wave 3), $N = 366$.

Table 3

Information criteria and entropies for LPA models with different numbers of profiles (Swiss sample).

Year 7 (wave 1), Swiss sample							
	AIC	BIC	aBIC	Entropy	LM LRT	ALM LRT	BLRT
1 profile	1637.367	1661.316	1642.277	–	–	–	–
2 profiles	1487.456	1527.371	1495.640	0.780	0.1123	0.1200	0.0000
3 profiles	1414.543	1470.424	1426.001	0.840	0.0731	0.0787	0.0000
4 profiles	1352.104	1423.950	1423.950	0.842	0.1302	0.1384	0.0000
5 profiles	1321.190	1409.002	1339.194	0.850	0.2056	0.2168	0.0000
Year 9 (wave 3), Swiss sample							
	AIC	BIC	aBIC	Entropy	LM LRT	ALM LRT	BLRT
1 profile	1830.435	1854.398	1835.360	–	–	–	–
2 profiles	1589.530	1629.469	1597.738	0.799	0.0011	0.0014	0.0000
3 profiles	1527.489	1583.404	1538.981	0.809	0.4481	0.4568	0.0000
4 profiles	1477.824	1549.716	1492.600	0.845	0.4223	0.4276	0.0000
5 profiles	1442.806	1530.673	1460.866	0.857	0.0801	0.0846	0.0000

Data source: SASAL-School Alienation in Switzerland and Luxembourg, Secondary students, Swiss Canton of Bern, panel sample, year 7 (wave 1) and Year 9 (wave 3), $N = 366$.

7.2. School alienation profiles and transition patterns

With LTA we analysed alienation profiles and transitions between those profiles from year 7 to year 9 and how these transitions are moderated by teaching style. The four-profile solutions for years 7 and 9 in the Luxembourgish samples are depicted in Fig. 1. Fit indices for this model are: AIC = 3481.210, BIC = 3812.933, aBIC = 3543.262; entropy = 0.872. There is no class invariance between the two-profiles' solutions in year 7 and year 9 ($p < .001$). In other words, the alienation profiles differ in the means (alienation from learning, alienation from teachers, alienation from classmates) between year 7 and year 9. Interpreting the results, we apply the categories of marginal (scale mean: 1–1.74), moderate (1.75–2.49), considerable (2.50–3.24) and high (3.25–4.00) to the school alienation scales that range from 1 to 4.

The four-profile solution in year 7 (Fig. 1) reveals that the majority of students are marginally alienated regarding the three alienation domains learning, teachers and classmates (Profile 1). Another major group of about the same size is moderately alienated from learning and moderately alienated from teachers but marginally alienated from classmates (Profile 2). One small group appears to be moderately alienated from learning and teachers but considerably alienated from classmates (Profile 3), while another small group is considerably alienated from learning and teachers but marginally alienated from classmates (Profile 4). Accordingly, we interpret and name the presented profiles in the following way:

Profile 1: Marginal alienation from learning, teachers and classmates (42 %)

Profile 2: Moderate alienation from learning and teachers (40 %)

Profile 3: Considerable alienation from classmates (7 %)

Profile 4: Considerable alienation from learning and teachers (11 %)

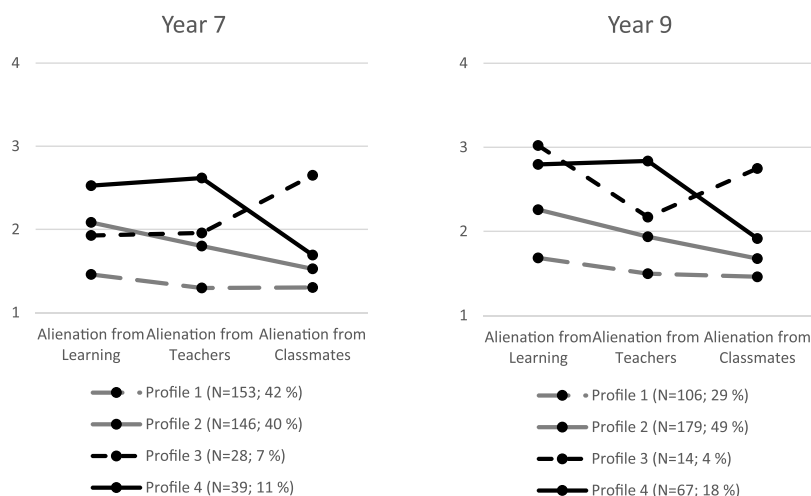


Fig. 1. Four-profile solution in Luxembourg (data source: SASAL), year 7 (wave 1) and year 9 (wave 3), controlled for gender, social origin, immigrant background.

Overall, the year 9 means of the different dimensions are higher than in year 7 in the Luxembourgish sample. The largest group (Profile 2) now includes students being moderately alienated from learning and teachers and marginally alienated from classmates, while marginally alienated students in all three domains (Profile 1) form the second largest group. A profound minority belongs to Profile 4 with considerable alienation from learning and teachers and marginal alienation from classmates. A small group appears to be considerably alienated from learning and classmates with moderate alienation from teachers at the same time (Profile 3).

Thus, the profiles of the four-profile solution in year 9 (Fig. 1) differ only slightly from the year 7 profile. However, Profile 3 differs strongly between year 7 and 9, and thus, ought to be named differently.

Profile 1: Marginal alienation from learning, teachers and classmates (29 %)

Profile 2: Moderate alienation from learning and teachers (49 %)

Profile 3: Considerable alienation from learning and classmates (4 %)

Profile 4: Considerable alienation from learning and teachers (18 %)

The two-profile solutions for years 7 and 9 in the Swiss sample are depicted in Fig. 2. Fit indices are AIC = 3193.548, BIC = 3322.960, aBIC = 3218.261, entropy = 0.869. There is no class invariance between the two-profiles' solutions in year 7 and year 9 ($p < .001$). In other words, the alienation profiles differ in the means (alienation from learning, alienation from teachers, alienation from classmates) between year 7 and year 9.

The two profiles identified in the Swiss sample in year 7 relate to two groups that differ in the level of alienation regarding all three domains in that the large majority of students belong to a marginally-alienated group (Profile 1) in year 7, while only a minority of about a quarter of students indicate a higher – although still low to moderate – alienation regarding the three domains.

Profile 1: Marginal alienation from learning, teachers and classmates (77 %)

Profile 2: Moderate alienation from learning and teachers (23 %)

In year 9, again, the two profiles are distinguished by the alienation levels regarding the three domains with Profile 2 – comprising of about a quarter of the students – showing higher alienation levels in comparison to Profile 1. The means of the different school alienation domains increased in both Profiles 1 and 2 between year 7 and 9. While the Profile 1 students show marginal alienation scores in all three domains close to the next threshold (moderate), Profile 2 students appear to be considerably alienated from learning and moderately alienated from teachers with lower alienation from classmates scores.

The two-profile solution for year 9 is quite similar and includes the following classes:

Profile 1: Marginal alienation from learning, teachers and classmates (74 %)

Profile 2: Considerable alienation from learning, moderate alienation from teachers (26 %)

A comparison of the Luxembourgish and the Swiss results of the LPA/LTA reveals more heterogeneity and multidimensionality among the Luxembourgish profiles. However, in both the Luxembourgish and the Swiss sample school alienation appears to be multidimensional with different scores regarding the respective school alienation domains within the profiles. Profile 1 is characterised by marginal alienation levels and low differences between the domain-specific scores. Profile 2 features moderate alienation levels with comparably higher scores for alienation from learning and lower scores for alienation from classmates, which appears to be reasonably similar when comparing the two country settings.

Next, we estimated transition probabilities for transitions between wave 1 and wave 3 school alienation profiles in the Luxembourgish and the Swiss sample (Table 4). In the Luxembourgish sample, a majority of 60 % of students who were among the marginally alienated students (Profile 1) in year 7, are similarly in the marginal alienation profile (Profile 1) in year 9. The Profiles 2 and 4 appear to be even more stable from a longitudinal perspective as 93 % of students characterised by moderate alienation from

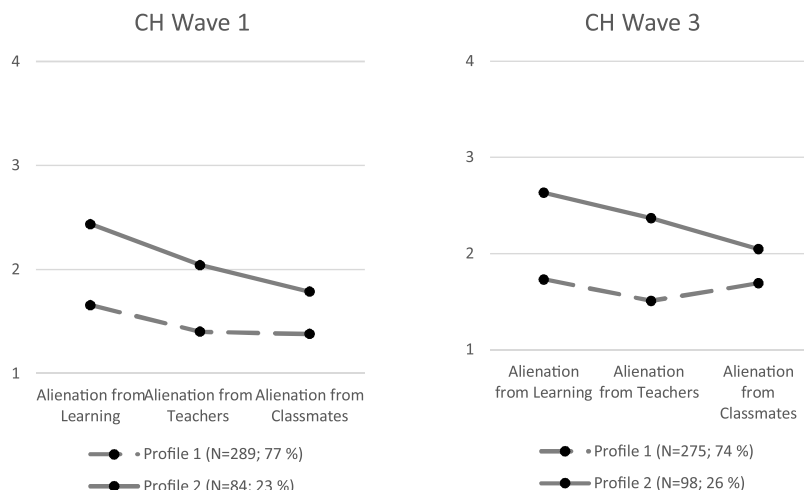


Fig. 2. Two-profile solution in the Swiss Canton of Bern (data source: SASAL), year 7 (wave 1) and year 9 (wave 3), controlled for gender, social origin, immigrant background.

Table 4
Latent transition probabilities (Luxembourg and Switzerland).

Wave 1	Model 1, No moderator, Luxembourgish sample				Model 1, No moderator, Swiss sample		
	Wave 3				Wave 3		
	Profile 1: Marginal alienation from learning, teachers and classmates	Profile 2: Moderate alienation from learning and teachers	Profile 3: Considerable alienation from learning and classmates	Profile 4: Considerable alienation from learning and teachers	Wave 1	Profile 1: Marginal alienation from learning, teachers and classmates	Profile 2: Considerable alienation from learning, moderate alienation from teachers
Profile 1: Marginal alienation from learning, teachers and classmates	.60	.25	.02	.13	Profile 1: Marginal alienation from learning, teachers and classmates	.87	.14
Profile 2: Moderate alienation from learning and teachers	.00	.93	.03	.04	Profile 2: Moderate alienation from learning and teachers	.23	.77
Profile 3: Considerable alienation from classmates	.07	.43	.26	.24			
Profile 4: Considerable alienation from learning and teachers	.09	.05	.00	.86			

Note: Controlled for gender, social origin, immigrant background.

Data sources: SASAL-School Alienation in Switzerland and Luxembourg, Secondary students, panel sample, year 7–9 (waves 1–3), Luxembourg N = 366, Swiss Canton of Bern N = 373.

learning and marginal alienation from teachers and classmates (Profile 2) and 86 % of students characterised by a pronounced alienation from learning and teachers in year 7 remain in the respective profiles in year 9. Interestingly, a minor proportion of students' transition from high-alienation profiles to less-alienated profiles. This applies to 9 % of students in Profile 4 (year 7) and 7 % of students in Profile 3 (year 7). It turns out that Profile 3 is the least stable profile, which is also rooted in the differences between Profile 3 characteristics in year 7 and year 9 with a pronounced upward shift in alienation from learning between the two waves. While 26 % of the students starting in Profile 3 in year 7 remain in this profile, a majority of 43 % transition towards Profile 2 (with a lower alienation from learning compared to Profile 3 in year 9). A quarter of the students (24 %) transition towards Profile 4 and are characterised by high alienation from learning and teachers.

Considering general transition probabilities in the Swiss sample, transitions between school alienation profiles are less likely than in the Luxembourgish sample owing to the smaller number of profiles identified in year 7 and year 9. While 87 % of the students in the marginally-alienated profile (Profile 1) remain in this profile, 23 % transition to Profile 2 and become more alienated from learning, teaching and, in a less pronounced way, their classmates. Moreover, 77 % of students in Profile 2 in year 7 are also most likely to remain in this profile.

7.3. The role of teaching style

We further evaluate to what extent teaching style moderates transitions between year 7 school alienation profiles and year 9 school alienation profiles (Tables 5 and 6; Model 2). While Group 1 has been exposed to teaching styles characterised by a poor focus on and a limited engagement with students as well as low support for students' competencies, students of Group 2 experienced more supportive teaching styles among their teachers.

Considering the largest group in the Luxembourgish sample (Table 5) – students who were marginally alienated in year 7 (Profile 1) – 96 % of this group transitioned to Profile 2 in year 9 and are now characterised by moderate alienation from learning with 4% of students who transitioned to Profile 4 becoming more alienated from learning and teachers. In the group that perceived teaching styles as student-oriented and supportive, only 25 % transitioned to Profile 2 and 75 % remained in the marginally-alienated group. Furthermore, considering that students in Profile 3 are characterised by a moderate alienation from their classmates and marginal alienation from learning and teachers in year 7, 52 % transitioned to the low-alienation profile (Profile 1) in the group of students taught in a student-oriented way, while in the low student-oriented teaching style group not one student transitioned to this profile with 100 % remaining in Profile 3.

Table 5
Latent transition probabilities (Luxembourg).

Model 2, Moderator: Teaching style (wave 1–2, median split), Luxembourgish sample								
Wave 1	Group 1: Low student-oriented teaching style				Group 2: High student-oriented teaching style			
	Wave 3							
	Profile 1: Marginal alienation from learning, teachers and classmates	Profile 2: Moderate alienation from learning and teachers	Profile 3: Considerable alienation from learning and classmates	Profile 4: Considerable alienation from learning and teachers	Profile 1: Marginal alienation from learning, teachers and classmates	Profile 2: Moderate alienation from learning and teachers	Profile 3: Considerable alienation from learning and classmates	Profile 4: Considerable alienation from learning and teachers
Profile 1: Marginal alienation from learning, teachers and classmates	.00	.96	.00	.04	.75	.25	.00	.00
Profile 2: Moderate alienation from learning and teachers	.00	1.00	.00	.00	.00	1.00	.00	.00
Profile 3: Considerable alienation from classmates	.00	1.00	.00	.00	.52	.42	.06	.00
Profile 4: Considerable alienation from learning and teachers	.00	.00	.00	1.00	.00	.00	.00	1.00

Note: Controlled for gender, social origin, immigrant background.

Data source: SASAL-School Alienation in Switzerland and Luxembourg, Secondary students, Luxembourg, panel sample, year 7–9 (waves 1–3), N = 366

Table 6
Latent transition probabilities (Swiss sample).

	Model 2, Moderator: Teaching style (wave 1–2, median split), Swiss sample			
	Group 1: Non-student-oriented teaching style		Group 2: Student-oriented teaching style	
	Wave 3			
Wave 1	Profile 1: Marginal alienation from learning, teachers and classmates	Profile 2: Considerable alienation from learning, moderate alienation from teachers	Profile 1: Marginal alienation from learning, teachers and classmates	Profile 2: Considerable alienation from learning, moderate alienation from teachers
Profile 1: Marginal alienation from learning, teachers and classmates	.80	.20	.91	.09
Profile 2: Moderate alienation from learning and teachers	.26	.74	.19	.81

Note: Controlled for gender, social origin, immigrant background.

Data source: SASAL-School Alienation in Switzerland and Luxembourg, Secondary students, Swiss Canton of Bern, panel sample, year 7–9 (waves 1–3), $N = 373$.

In the Swiss sample (Table 6), the strength of the impact of the moderator teaching style is much weaker while transitions are less likely in general as indicated above. Although much less pronounced than in the Luxembourgish sample, results of the moderator analysis reveal that a student-oriented teaching style reduces the likelihood of transitioning to Profile 2, with higher alienation levels, from the marginally-alienated Profile 1. While in Group 1, characterised by a non-student-oriented teaching style, 20 % of marginally-alienated students in year 7 (Profile 1) transitioned to the more highly alienated Profile 2, in Group 2, characterised by a student-oriented teaching style, only 9 % of the students experienced this transition. However, for students who already showed higher alienation levels in year 7 and thus had been assigned to Profile 2, the teaching style registered little change. A student-oriented teaching style even decreased the already low number of students who had been assigned to the alienated Profile 2 in year 7 and transitioned to the marginally-alienated Profile 1 in year 9.

8. Discussion

In identifying school alienation profiles and analysing the interrelation of school alienation and teaching styles in a longitudinal perspective during lower secondary education, we provide an in-depth study of school alienation. Concerning the multidimensional nature of school alienation, results indicate country- and even year-specific school alienation profiles. While four profiles were identified in Luxembourg, the LPA reveals two profiles in Switzerland. Considering the group sizes, the clusters of marginally-alienated students and of moderately-alienated students were prominent in Luxembourg in year 7 and year 9, notwithstanding that the size of the marginally-alienated profile cluster profoundly decreased over time. Two clusters appear year-specific in Luxembourg. In year 7, we find a profile in which students are more noticeably alienated from their classmates. In year 9, a distinct profile is characterised by pronounced alienation from learning and classmates, but not from teachers. In the Swiss Canton of Bern, about three-quarters of the students are considered in the marginally-alienated cluster over a three-year period of secondary education with minimal change recorded. The Swiss school alienation profiles appear to be more stable than the Luxembourgish profiles. Moreover, Swiss students in the Canton of Bern transition less frequently between profiles. The means of the domain-specific alienation dimensions within the profiles generally increased and are more pronounced in Luxembourg than in Switzerland. However, it is important to distinguish between alienation from learning and teachers on the one hand and alienation from classmates on the other. Alienation from classmates shows the lowest scores and appears to be more stable over time. Transitions that occurred in Luxembourg relate more often to transitions from lower alienation profiles to higher alienation profiles, particularly regarding alienation from learning and teachers. Interestingly, those students who are noticeably alienated from their classmates in year 7 most often transitioned towards moderate alienation from learning and teachers in year 9 indicating a kind of “spillover effect”. In the Swiss sample, transitions between profiles occur less frequently and more often towards lower alienation profiles than in Luxembourg. With regards to the impact of a student-oriented and supportive teaching style on changes between school alienation profiles, it emerged that the impact of teaching style is more evident in Luxembourg than in Switzerland. A student-oriented supportive teaching style seems to equally prevent students from transitioning towards more alienated profiles with regard to learning and teachers (“spillover”), and to foster transitions from more alienated profiles into less alienated profiles, particularly into the marginally-alienated student group in Luxembourg. In Switzerland, the student-oriented teaching style appears to be less beneficial, as it only prevents some students of the marginal-alienation profile in year 7 from transitioning to profiles being characterised by more pronounced school alienation, particularly from learning and teachers.

The school alienation profiles indicated by the LPA/LTA analysis support the notion that alienation is multidimensional and that it makes sense to consider alienation as a domain-specific phenomenon (Hascher & Hadjar, 2018; Morinaj et al., 2017). Students are not similarly alienated from all three dimensions or school as a whole, but from specific domains. A particular distinction has to be made between alienation from classmates and alienation from learning and teachers. This also underlines the usefulness of the latent class

analysis and – with regard to longitudinal changes – latent transition analysis.

The identified school alienation profiles resemble habitual patterns towards school as were introduced in the work on school culture and the academic habitus concept by [Kramer and Helsper \(2011\)](#) that is based on Bourdieu's (1984) habitus concept. In this vein, the latent profile analysis revealed one habitus pattern being closer to school and education, namely the marginally-alienated Profile 1 in Luxembourg and Switzerland. The analyses also revealed two patterns that were more distant from education such as Profile 4 in Luxembourg and Profile 2 in Switzerland – both of which are characterised by more pronounced alienation from teachers and learning. While previous research on the habitus concept defined habitus as a relatively stable student characteristic that is based on educational attitudes of the parental home and social class, the present study shows how these patterns change and that teaching style appears to be a moderator of the way in which students change between such patterns over time.

A student-oriented and supportive teaching style seems to reduce school alienation. This is more strongly evident with regard to alienation from learning and teachers, and is less pronounced with regard to students being alienated from their classmates. Such a teaching style may also prevent the “spillover” between a pronounced alienation in one domain and other domains in the Luxembourgish sample. This supports the notion of beneficial impacts of authoritative and supportive teaching for students' learning and well-being ([Baker et al., 2009](#); [Hallinan, 2008](#)). It also affirms findings on the positive impact of teacher-student relationships – as being an important part of the school culture – on alienation ([Grecu et al., 2019](#); [Mahmoudi, Brown, Amani Saribagloo, & Dadash-zadeh, 2018](#)).

Interestingly, school alienation appears to be more pronounced in the more strongly stratified and externally-differentiated education system of Luxembourg. This may be explained by the existence of a higher pressure to perform and to succeed with regard to frequent school transitions compared to the less segregated and more permeable schools in Switzerland. The same applies to the role of teaching style that appears to be of high importance in this setting. The highly-stratified Luxembourgish secondary education system is characterised by high instability – with regard to switches between classrooms, tracks and teachers – and high levels of heterogeneity regarding learning environments. This may lead to more frequent transitions between multidimensional school alienation profiles on the one hand and may give teachers an even more important role on the other. Teachers play an active role in these mechanisms, as they have to generate and balance contextual conditions like assuring a certain stimulating classroom climate. This in turn prevents students from becoming more alienated from learning (in terms of academic alienation), as well as from their teachers and classmates (in terms of social alienation), and thus, facilitates the learning process. However, future research should study the role of teachers and manifold teaching styles in more detail.

Considering the results, certain limitations have to be taken into account. As both samples are non-random samples, we controlled for the most common sources of bias and particularly for characteristics that are differently distributed in both country settings such as social origin, gender and immigrant background. In general, latent profile and latent transition analysis carry the limitation that the fit indices to evaluate certain cluster or profile solutions sometimes contradict each other. After careful consideration of a variety of fit indices, we have opted for the solutions with the best possible values. Moreover, we considered the sizes of the profile groups (clusters) and whether the profiles were meaningful in light of conceptual considerations. Sample size is always a limitation that impacts the latent profile and latent transition analysis outcomes, as much larger sample sizes would allow for the identification of even more complex profiles.

Furthermore, the data is based on students' reports on teaching style. According to the Thomas theorem ([Thomas & Thomas, 1928](#)), students' perception of teaching styles rather than the “objective” teaching style impacts their attitudes and behaviour. However, students may perceive teaching styles in a biased way and school alienation itself may be one source of such bias.

To conclude, the identification of specific school alienation profiles may help to better understand aversive student development and contribute to the literature around learning environments by both addressing students' enjoyment of learning, positive teacher-student relationships and positive relations in classrooms and schools. Identifying specific profiles may also help to find specific measures to reduce alienation and increase students' integration in school. As was also established, teachers play an important part in this development. Although the results of this study are framed by two externally differentiated education systems of Luxembourg and Switzerland (Canton of Bern), they may also apply to other stratified education systems (e.g. Austria, Germany, The Netherlands). Future research could investigate the validity of the results in other countries as well as the question of whether teaching styles may differ by school, classroom, course and teachers. As a socio-psychological construct, the multi-domain concept of school alienation may serve as a heuristic tool, being globally applicable, to identify potentially harmful attitudinal patterns towards school and how they develop over an educational career.

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